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Testing general relativity with black holes using X-ray observations COSIMO BAMBI, Fudan University — Einstein's theory of general relativity was proposed over 100 years ago and has successfully passed a large number of observational tests in weak gravitational fields. However, the strong field regime is still largely unexplored, and there are many modified and alternative theories that have the same predictions as Einstein's gravity for weak fields and present deviations only when gravity becomes strong. Astrophysical black holes are ideal laboratories for testing gravity in the strong field regime. In this talk, I will present the XSPEC models RELXILL_NK and NKBB, which are designed for testing the metric around black holes by fitting, respectively, the reflection and the thermal component of the accretion disk. I will also show current constraints on possible new physics from the analysis of a few sources with these models.

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